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ORIGINAL ARTICLE / ARAŞTIRMA YAZISI

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Evaluation of Maternal Attitudes Towards The Nutrition of Pre-School Children

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ABSTRACT

Purpose: The aim of this study is to evaluate the attitudes of mothers with pre-school children towards child nutrition and to determine the relationship between these attitudes of mothers and the children's body mass index (BMI).

Methods: This descriptive study was conducted with mothers of children aged 4-6 years in kindergartens. The data were collected by using the Mother Descriptive Characteristics Form, Child Descriptive Characteristics Form" and " Mother's Attitudes Towards the Feeding Process Scale (MATFPS). BMI (kg/m^2) of all children was determined.

Results: In the study, MATFPS total mean score of mothers with pre-school children was 60.09±17.60, and mothers' attitudes towards the feeding process were at a good level. MATFPS mean score of mothers of children with a birth weight of 1000-2000 grams was statistically significantly higher than those with a birth weight of 2001-3000, 3001-4000 and 4001-5000 grams ($p<0.01$). According to the BMI of the children of the mothers participating in the study, 19.4% were underweight, 10.0% were at underweight risk, 47.6% were healthy, 10.5% were slightly obese, and 12.0% were obese; the difference between the mean scores of the mothers and the BMIs of the children is highly significant ($p<0.001$).

Conclusion: Mothers' attitudes towards the feeding process are at a good level. However, the low birth weight causes the negative attitudes in mothers towards the feeding process. Again, BMI which is an indicator of growth and development in children, negatively affects maternal attitudes in the feeding process. Pediatric nurses can provide counseling to mothers in order to develop positive attitudes.

Keywords: Attitude, mother, nurse, nutrition, preschool child

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Okul Öncesi Çocukların Beslenme Sürecinde Anne Tutumlarının Değerlendirilmesi

ÖZET

Amaç: Bu çalışma ile okul öncesi çocuğu olan annelerin beslenme süreci tutumlarının değerlendirilmesi ve annelerin bu tutumları ile çocuklarının beden kütle indeksi (BKİ) arasındaki ilişkinin belirlenmesi amaçlanmıştır.

Yöntem: Tanımlayıcı olan bu araştırma, 4-6 yaş arasındaki çocukların anneleri ile yürütülmüştür. Veriler, "Anne Tanıtıcı Özellikler Formu, Çocuk Tanıtıcı Özellikler Formu" ve "Beslenme Süreci Anne Tutumları Ölçeği (BSATÖ)" kullanılarak toplanmıştır. Ayrıca tüm çocukların BKİ'leri (kg/m^2) belirlenmiştir.

Bulgular: Araştırmada okul öncesi çocuğu olan annelerin BSATÖ toplam puan ortalaması 60,09±17,60 olup, annelerin beslenme sürecine dair göstermiş olduğu tutumlar iyi düzeydedir. Doğum ağırlığı 1000-2000 gram olan çocukların annelerinin BSATÖ puan ortalaması doğum ağırlığı 2001-3000, 3001-4000 ve 4001-5000 gram olanlara göre istatistiksel olarak anlamlı derecede yüksektir ($p<0,01$). Çalışmaya katılan annelerin çocuklarının BKİ'ye göre %19,4'ü zayıf, %10,0'ı zayıflık riski, %47,6'sı normal, %10,5'i hafif şişman, %12,0'ı şişman olup, annelerin ölçek puan ortalamaları ile çocukların BKİ'leri arasındaki fark ileri düzeyde anlamlıdır ($p<0,001$).

Sonuç: Annelerin beslenme sürecine dair göstermiş olduğu tutumlar iyi düzeydedir. Ancak, çocukların doğum ağırlığının düşük olması beslenme sürecindeki anne tutumlarının olumsuzluğuna neden olmaktadır. Yine çocuklarda büyüme ve gelişmenin göstergesi olan çocukların BKİ'leri beslenme sürecindeki anne tutumlarını olumsuz etkilemektedir. Pediatri hemşireleri olumlu tutum geliştirmeleri için annelere danışmanlık yapabilirler.

Anahtar kelimeler: Tutum, anne, hemşire, beslenme, okul öncesi çocuk

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In the preschool period, while psychological, biological, familial and sociocultural factors are among the main causes of malnutrition, parental attitudes are extremely important in the nutrition of children (1-3). Parental attitudes are important determinants of eating problems that may occur in the future. Therefore, understanding the feelings, thoughts about and approaches of mothers towards the feeding process is extremely important in terms of evaluating their attitudes towards the feeding process (3, 4).

The development of nutrition-related behaviors in preschool children takes place in and around the care-giver. When problems with nutrition last for a long time, this negatively affects the growth and development of the child (5-7). For this reason, it is very important to determine the eating problems of children and to understand the attitudes of mothers in the process of feeding their children. Pediatric nurses have the primary role in evaluating the preschool child and mother with a holistic care approach, determining the child and mother's attitudes towards nutrition, planning arrangements for and taking necessary precautions against negative attitudes as well as reinforcing positive attitudes (4, 8-10). As pediatric nurse is in an ideal position as a role model for the child, family and society when it comes to adequate and balanced nutrition, they will ensure success in raising healthy children (10, 11).

It is extremely important to understand the eating behavior problems of children, to determine the attitudes of mothers during the feeding process and to support the growth and development of the child (12-14). The attitudes of mothers towards feeding process help the child to develop food liking and to gain self-feeding skills. These acquired skills can affect the healthy eating behavior, growth and weight status of the child later in life (15). For this reason, it is necessary to determine the positive or negative attitudes of mothers that affect the weight and eating habits of children during the nutrition process (16-18). In this context, there is a need to determine children's eating behaviors, mothers' attitudes towards the feeding process, and to evaluate negative maternal attitudes that may reinforce the eating problem in children (19, 20). It is thought that determining the factors affecting the eating habits of preschool children will be effective in preventing various nutritional problems. Based on this idea, this study aimed to evaluate maternal attitudes in the feeding process of preschool children and to determine the relationship between these attitudes of mothers and their children's Body Mass Index (BMI).

MATERIALS and METHODS

Type of Study

The study adopted descriptive research design.

The Population of the Study

The population consisted of mothers with children aged 4-6 years who continue their education in kindergartens affiliated to the Provincial Directorate of National Education in the 2019-2020 academic year (N=1961). In deciding on the sample of the study, the

$$\frac{N*t^2*p*q}{d^2(N-1)+t2*p*q}$$

formula was used since the volume of the population is known for a finite population. When the formula was satisfied with the given data. N = 1961, p = 0.5, q = 0.5, t = 1.96, d = 0.05, the sample size was found n = 321. This study was conducted with 324 mothers.

Inclusion criteria for the study are that mothers must have children in the age group of 4-6 studying in kindergartens affiliated to the Provincial Directorate of National Education in the 2019-2020 academic year, have the ability to read and understand the questions in the introductory information form, and be volunteering to participate in the study. Mothers who were illiterate or did not volunteer to participate in the study or whose children had a chronic disease were excluded from the study.

Data Collection Tools: Mother and Child Descriptive Characteristics Form and Mother's Attitudes Towards the Feeding Process Scale (MATFPS) were used to collect the data. In addition, all children's height (m) and body weight (kg) were measured and their BMI (kg/m^2) calculated and these data were used in the study.

Mother and Child Descriptive Characteristics Form; This form was prepared by the researcher in line with literature (3-8, 10, 19-22) and covers items to explore descriptive characteristics of mothers and child.

Mother's Attitudes Towards the Feeding Process Scale (MATFPS); It is a 5- point Likert type scale developed by Dilsiz and Dağ, and consists of 27 items (22). The scale produces five factors: Negative Affect During Meal, Attitudes about Insufficient/Unbalanced Feeding, Negative Feeding Strategies, Forced Feeding and Reaction to the Viewpoints of Others. Scale items were designed in a five-point likert structure from never to always. The total score that can be obtained from the MASFP ranges from 27-135.

The increase in the scores obtained in terms of each factor and the total score of the scale shows that the problems related to the attitudes of the mothers towards the feeding process also increase . The Cronbach Alpha value of the scale was determined as 0.91, and the test-retest reliability coefficient was found to be 0.94 (22). In this study, the Cronbach Alpha value of the scale was determined as 0.917.

Evaluation of Children's BMI; defined by the United States of America National Center for Health Statistics and approved by the US Centers for Disease Control and Prevention and World Health Organization (WHO), international standard indicators related to BMI were used to evaluate the BMI of Children (23-25). BMI was calculated using the formula Weight [kg]/Height^2 [m^2]. In this study, these percentage curves were used for Turkish children, and those with BMI <3% were considered underweight, 3-15% were at risk of underweight, 15-85% were healthy, 85-97% were slightly obese, and those with a BMI >97% percent were considered obese (21, 23).

This study was conducted after having obtained the ethics committee's approval and in accordance with the rules of the Helsinki declaration. Ethics committee approval (28.02.2019/2019-86) was received from the ethics committee in order to conduct the research. All participants to be included in the study were informed and their written consent was obtained.

Statistical Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS for Windows, v. 22.0). Number, percentile, and mean (minimum and maximum) were used for analysis. The nonnormally distributed data were analyzed using the Kruskal-Wallis and Mann-Whitney U tests. Mann Whitney U post-hoc multiple comparison test with Bonferroni correction was used to determine the group that differed after the Kruskal Wallis test.

RESULTS

Figure 1 provides the mothers' total mean scores of MATFPS and sub-scales. The total mean score of the scale is 60.09 ± 17.60, and the sub-scale mean scores of negative affect during meals, attitudes about insufficient/unbalanced feeding, negative feeding strategies, forced feeding, reaction to the viewpoints of others are 12.81±5.53, 23.71±7.81, 9.68±3.82, 5.28±1.96, 8.61±3.66 respectively (Figure 1).

It was determined that 201 of the 324 mothers participating in the study were between the ages of 30-40, 290 had nuclear family, and 174 had a university or higher education degree (Table 1). Table 1 shows the comparison of the mothers' MATFPS total mean scores with certain descriptive characteristics.

In Table 2, the comparison of the MATFPS total mean score of the mothers with certain introductory characteristics of their children is given. MATFPS total mean score among the mothers of children with a birth weight of 1000-2000 grams (74.25±22.69) was determined statistically significantly higher than those with birth weight of 2001-3000 (64.07±16.91), 3001-4000 (58.47±17.00) and 4001-5000 (52.79±17.77) grams ($p<0.01$; Table 2).

Table 3 shows the comparison of the MATFPS total mean score of the mothers with the BMI of their children. It was determined that the total mean score of the mothers of the children with low BMI in the study was statistically significantly higher than the mean score of the mothers of healthy, slightly obese and children with obesity ($p<0.001$; Table 3).

When the relationship between the total mean scores and sub-scale mean scores of the mothers in the study was analyzed, it was found that there was a statistically low level of negative correlation between the total and subscale means scores of the mothers and their children's weight (kg), height (cm) and BMI ($p<0.001$; Table 4).

DISCUSSION

The attitudes of mothers in the feeding process of their children help the child to develop food liking and to gain self-feeding skills. These acquired skills can affect the healthy eating behavior, growth and weight of the child later in life (3, 16, 25). For this reason, it is necessary to determine the positive or negative attitudes of mothers that affect the weight and eating habits of children during the eating process (17, 18). It has been observed in the literature that studies on determining the attitudes of mothers with preschool children are limited. This study will be a guide to determine the attitudes of mothers with pre-school children in the feeding process, understand the nutritional behaviors of children, and nurses' help early intervention in the negative attitudes of mothers in the feeding process and problematic eating behaviors of children.

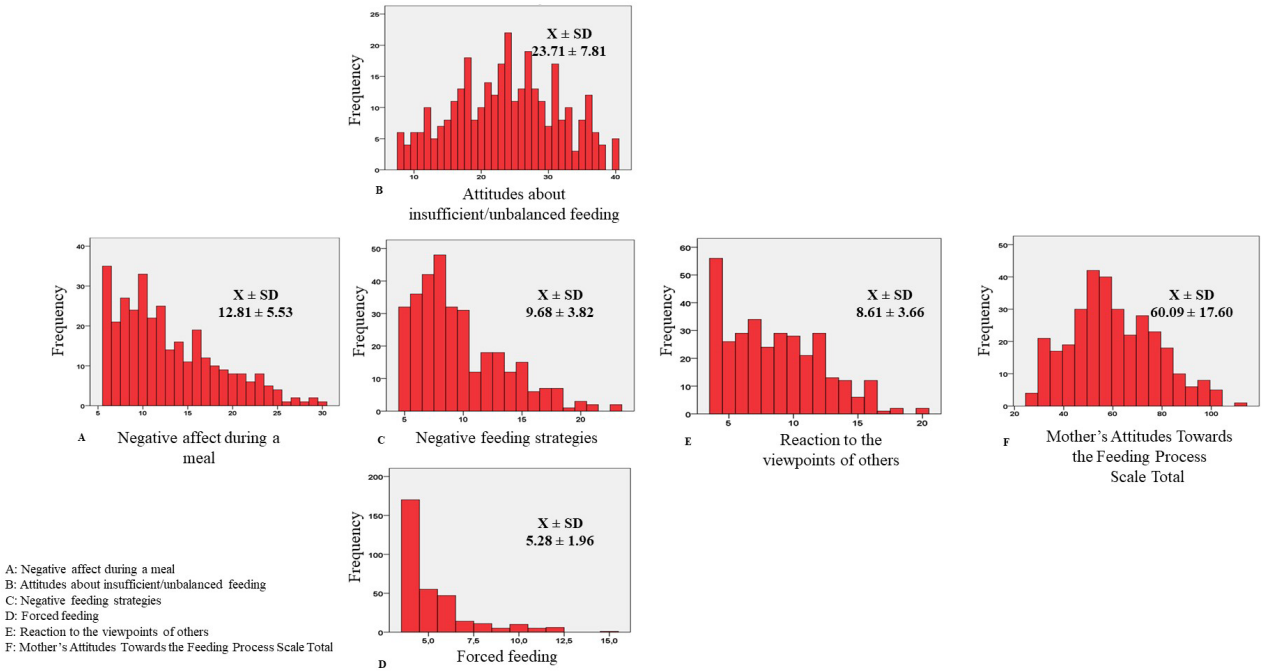


Figure 1. Means of Mothers' Total and Sub-scale Scores of "Mother's Attitudes Towards the Feeding Process Scale (MATFPS)".

Table 1. Comparison of mothers' MATFPS mean scores with certain descriptive characteristics

Mothers' Descriptive Characteristics	n (%)	ẋ ± SD	Median (Q1-Q3)	P
Maternal age				
20-30	82 (25.4)	62.45 ± 20.16	59 (28-104)	0.308[a]
30-40	201 (62.0)	58.81 ± 16.77	57 (27-111)	
≥ 40	41 (12.6)	61.66 ± 15.80	62 (33-97)	
Family type				
Nuclear family	295 (91.0)	59.98 ± 17.76	58 (27-111)	0.484[b]
Extended family	29 (9.0)	61.24 ± 16.05	58 (27-98)	
Mother's educational status				
Primary school	27 (8.3)	60.81 ± 18. 84	57 (30-92)	0.308[a]
Middle School	32 (9.9)	65.28 ± 17. 52	60.5 (28-104)	
High school	91 (28.1)	57.46 ± 17. 29	57 (27-103)	
University and higher	174 (53.7)	60.62 ± 17. 91	59 (27-111)	
Economic situation of the family				
Income less than expenses	44 (13.6)	63.18 ± 16. 57	61.5 (28-104)	0.375[a]
Income equal to expenses	155 (47.8)	59.32 ± 18. 26	57 (27-104)	
Income greater than expenses	125 (38.6)	59.96 ± 17. 12	59 (27-111)	
Mother's working status				
Working	146 (45.1)	59.63 ± 17. 05	59 (27-111)	0.760[b]
Not working	178 (54.9)	60.47 ± 18. 07	57 (27-104)	
Number of children the Mother has				
one	92 (28.4)	62.67 ± 18. 96	60 (27-111)	0.413[a]
2	165 (50.9)	59.05 ± 16. 99	57 (27-104)	
3 and more	67 (20.7)	59.07 ± 16. 74	55 (30-98)	

[a]Kruskal Wallis Test, [b]Mann Whitney U Test, SD: Standard Deviation, MATFPS: Mother's Attitudes Towards the Feeding Process Scale

Table 2. Comparison of mothers' MATFPS scores with children's descriptive characteristics

Child' Descriptive Characteristics	n (%)	ẋ ± SD	Median (Q1-Q3)	P
Gender				
Girl	134 (41.4)	58.69 ± 17.51	57 (27-98)	0.346[b]
Boy	190 (58.6)	61.08 ± 17.64	59 (27-111)	
Age				
4	82 (25.3)	58.20 ± 17. 20	57 (27-104)	0.379[a]
5	104 (32.1)	61.89 ± 17. 66	60 (28-111)	
6	138 (42.6)	59.86 ± 17. 78	57 (27-103)	
Birth weight				
1000-2000 grams	12 (3.7)	74.25 ± 22. 69	80 (37-100)	0.004[a]
2000-3000 grams	74 (22.8)	64.07 ± 16. 91	61.5 (30-98)	
3000-4000 grams	224 (69.2)	58.47 ± 17. 00	56.5 (27-111)	
4000-5000 grams	14 (4.3)	52.79 ± 17. 77	51.50 (27-85)	
Birth week				
28-36 weeks	41 (13.9)	64.80 ± 20. 48	61 (27-104	0.156[b]
36 weeks or more	283 (86.1)	59.41 ± 17. 07	57 (27-111)	

[a]Kruskal Wallis Test, [b]Mann Whitney U Test, SD: Standard Deviation, MATFPS: Mother's Attitudes Towards the Feeding Process Scale

Table 3. Comparison of mothers' MATFPS mean scores with children's BMI

Children BMI	n (%)	Mothers' MATFPS ẋ ± SD	Median (Q1-Q3)	P	Post-hoc p value
Underweight	63 (19.4)	69.57 ± 15.97	69 (35-103)	< 0.001	1-2: 1.000 1-3: < 0.001
The Risk of Underweight	34 (10.5)	67.15 ± 16.33	63 (34-103)		1-4: < 0.001 1-5: < 0.001
Healthy	154 (47.6)	58.81 ± 17.43	55 (27-111)		2-3: 0.085 2-4: 0.018
Slightly Obese	34 (10.5)	54.29 ± 14.33	51 (33-84)		2-5: < 0.001 3-4: 1.000
Obese	39 (12)	48.74 ± 14.87	49 (28-81)		3-5: 0.018 4-5: 1.000

Kruskal Wallis Test, SD: Standard Deviation, MATFPS: Mother's Attitudes Towards the Feeding Process Scale BMI: Body Mass Index

Table 4. Correlation analysis between mothers' total and sub-scale scores of MATFPS and children's height, weight and BMI

		MATFPS Total	Negative affect during a meal	Attitudes about insufficient/ unbalanced feeding	Negative feeding strategies	Forced feeding	Reaction to the viewpoints of others
Height (cm)	**r**	-0.289*	-0.327*	-0.180*	-0.235*	-0.132*	-0.180*
	P	< 0.001	< 0.001	< 0.001	< 0.001	0.018	< 0.001
Weight (kg)	**r**	-.491*	-.430*	-.425*	-.349*	-.148*	-.345*
	P	< 0.001	< 0.001	< 0.001	< 0.001	0.007	< 0.001
BMI	**r**	-.390*	-.297*	-.383*	-.243*	-.109*	-.289*
	P	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

** Spearman's rho Correlation*
MATFPS: Mother's Attitudes Towards the Feeding Process Scale
BMI: Body Mass Index

In this study, it was determined that mothers with children in the age group of 4-6 obtained 60.09±17.60 points in MATFPS. Considering the minimum and maximum values (27-135) of the scale used in this study and the low score indicating a positive attitude, it can be said that the attitudes of the mothers towards the feeding process are at a good level (Figure 1). However, it draws attention to the fact that more studies should be carried out for the importance, intelligibility and awareness of the attitudes of parents with preschool children in the feeding process.

Nutrition is a process that is based on mutual communication between the child and the mother and is shaped by reactions. The most important factor affecting children's feeding behavior is mother's attitudes (19, 25, 26). In this study, it was determined if the difference between mothers' MASFP mean scores and such descriptive characteristics as age, family type, educational status, etc. was statistically significant ($p>0.05$; Table 1). This results shows that the attitudes of the mothers towards the feeding process of their children are similar regardless of their age, educational status and economic status.

The attitudes of mothers towards the feeding process change according to the birth weight and week of their children, and as a result, negative or positive effects of maternal attitudes on the growth and development of children are observed (19, 27, 28). In this study, it was determined that the difference between mothers' MATFPS mean scores and their children's gender and week of birth was not statistically significant ($p>0.05$), while the difference between birth weight was significant ($p<0.01$; Table 2). In this study, as the birth weights of the children of the participating mothers decrease, the increase in their MATFPS mean score shows that their attitudes towards the feeding process are negatively affected.

BMI is one of the anthropometric measurements that reflects the nutritional status as well as showing growth and development. Chen et al. and Bergmeier et al. have reported that children's BMI has an effect on parental attitudes (26, 27). In this study, it was determined based on the children's BMI that total mean score of the mothers of underweight children was significantly higher than the mean score of the mothers of healthy, slightly obese and children with obesity ($p<0.001$; Table 3). This study produced results in line with the literature that the attitudes of mothers of children with low BMI towards the feeding process are negative compared to mothers of healthy, slightly obese and children with obesity.

It is important to determine the nutritional status and patterns of pre-school children and to determine the factors affecting these nutrition patterns in preventing various nutritional problems that may occur. Height, weight and BMI measurements form the basis of the evaluation of the nutritional status of the child (29, 30). In this study, it was determined that there was a negative, low-level and significant relationship between the mothers' MASFP total scores and sub-scale scores and their BMI ($p<0.001$; Table 4). Bergmeier et al. reported that there was a significant relationship between parental feeding style and children's BMI (27). In this study, the determination of a negative, low-level, and significant relationship between children's BMI and mothers' scale total and sub-scale scores shows that negative maternal attitudes in the feeding process negatively affect height, weight and BMI, which are indicators of growth and development in children.

CONCLUSION

In line with the findings obtained from the research, mothers' attitudes towards the feeding process are at a good level. However, the low birth weight of children causes negative maternal attitudes in the feeding process. Again , children's height, weight and BMI, which are indicators of growth and development in children, negatively affect maternal attitudes in the feeding process. In this direction, pediatric nurses should organize trainings for mothers on the follow-up and evaluation of growth and development in children, early detection of deviations from normal and appropriate guidance.

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